



JANUARY '84

I-M 1 IN A MILLION CLUB
NATIONAL NEWSLETTER

INSIDE...

INTRODUCTION

REVIEWS

TYPEWRITER ART!

ARCADE SECTION



GEO-GRAFIX LIMITED

P.O. Box 54 • Arrowhead Blvd. S-1722

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WORD PROCESSING FOR THE IM-1

COPY WRITER is a versatile, easy to use word processing program written especially for the IM-1. It prints in upper and lower case and gives you full control of your printer's ability to use different fonts, intensities, and line spacings. It will store 120 lines of up to 80 characters on tape or disk. And it has a full range of editing features, which allow you to edit, recall, insert, delete, copy, move, split and re-form (wrap) lines. Words and characters can be edited using a find and replace line editing feature. Every function of COPY WRITER is instantly available using one-character commands, such as E for edit and T for type and H for a help screen with a list of all COPY WRITER commands. This is the only word processor for the IM-1 that gives you such versatile editing features and allows embedded printer commands using both the escape and control keys. If your printer can do it, it can do it with COPY WRITER.

AND MAILING LIST LABELS

LABEL WRITER, included with COPY WRITER at no extra cost, allows you to create a mailing list with up to 135 entries. Then print mailing labels of any entry or of the entire list. Or print a master list in 80 column format. *Both programs together for only \$19.95 -- on tape with complete documentation.*

ACCOUNTING FOR THE IM-1

BOOK KEEPER is a simplified accounting program that will give you a monthly income and expense statement that includes year-to-date data. It allows up to 120 entries per month. All data can be displayed on the screen or printed on an 80 column printer. BOOK KEEPER is suitable for use in small businesses or in the home. It can be more useful for budgeting than many programs written just for that. It lets you name 4 income and 10 expense accounts. Still using a program that asks for monthly income in a single entry? Why not start using BOOK KEEPER? *The cost is just \$11.95.*

AND PROPERTY MANAGEMENT

RENT KEEPER is a property management accounting system similar to BOOK KEEPER. The accounts are already named by the program, and up to 100 entries per month are allowed. The monthly statement gives data for each entry as well as totals for income and expenses, gross profit, debt service, cash flow, owner's account and security deposits. It is suitable for use by the owner or professional manager of rental property. Written by a licensed California real estate broker, RENT KEEPER will greatly simplify your accounting chores and help you keep neat, clear and organized records for your rental properties. *Cost is \$11.95.*

BOOK AND RENT KEEPER \$14.95

ALL FOUR PROGRAMS \$29.95

ALL PROGRAMS ARE 16K ONLY. SEND CHECK OR MONEY ORDER TO:

JIM CLATFELTER
646 CORWIN AVENUE
GLENDALE CA 91206

WELCOME

Thanks to all who have re-joined the IM-1 IN A MILLION RANKS FOR 1984, and a SPECIAL GREETING to those of you who are members for the first time! It's GREAT to have all of you with us! A lot of activities are planned for the year, so SEND US YOUR IDEAS TODAY! Also, please include a S.A.S.E. if you would like a written reply. Here are some facts about the newsletter.

FORMAT

The newsletter is made up of categories such as, GENERAL NEWS AND PRODUCT REVIEW, ORCHESTRA PIT, SHORT PROGRAM LISTS, NATIONAL MAILBOX, ARTSHOP, THE ARCADE, SPOTLIGHT, SOAPBOX, Q & A, THE LANGUAGE BARRIER, MAILBAG, CLASSIFIED AND COMMERCIAL ADVERTISEMENT. We will do our best to FILL each of these categories, however, we may delete a category and replace it with another if membership participation into a category is LOW for a given month.

Some of the categories REQUIRE membership participation, so, if there is one that interests you, HELP TO KEEP IT ACTIVE by addressing your ideas, comments, and suggestions to it! We'll be glad to publish your ideas in upcoming editions!

TYPE AND TEXT

Type sizes and styles may vary throughout the newsletter. Some program lists will be printed with a dot matrix printer in order that we may print as many lists as possible in the space allotted. We will attempt to columnize most articles, but variations may occur periodically.

ARRANGEMENT

In keeping with past IM-1 NEWSLETTER TRADITION, most of the issues will be arranged using the IM-1, with hardcopy generated by a variety of printers and terminals.

The data contained in the newsletter is typed into the IM-1 using either THE LINE PROCESSING SYSTEM by G.R. JONES, or with COPY WRITER by JIM CLATFELTER AND G.R. JONES.

After typing each page into the IM-1, the data is dumped into an ADDS CONSUL 980 TERMINAL (CRT), or directly to a CANON MODEL AP350 ELECTRONIC TYPEWRITER for column printing. Any information sent to the ADDS is arranged and sent to either a G.E. TERMINET 300 or a G.E. MODEL 30 (Dot Matrix) for HARD COPY production.

MAINTENANCE

We have received MANY requests to print a MAINTENANCE section in the newsletter. If we receive enough information covering this subject, we will replace the SPOTLIGHT with the MAINTENANCE category. If there is NO INPUT into either the SPOTLIGHT or MAINTENANCE categories, a category called EXTRA will appear.

This first issue will contain LEAD PARAGRAPHS that are intended to introduce you to the individual characteristics of each category. These paragraphs WILL NOT APPEAR in future issues.



PRODUCT REVIEW

FROGGY ON THE FREEWAY!

This HI RES BK game, written by ERIC BECKETT tests your ability to maneuver your FROGS across a BUSY FREEWAY. The object is to get to the other side without being SQUASHED by the traffic. I thought that RUSH HOUR on the DAN RYAN in CHICAGO was bad, but the traffic in this game is menacing!

A mixture of moderately moving HI RES flies, cars, trucks, and slithering snakes make up your frogs' paved battleground. The RIGHT JOYSTICK is used to cause your frog to HOP into its own extinction! Four boxes at the top of the screen make up your frog's ultimate objective. After making it across the freeway, you must align your frog with any of the four boxes, and HOP into any one of them to safety. Another frog will then appear at the bottom of the screen ready for you to tempt its fate!

Each time your frog successfully crosses the freeway, the traffic gets faster. The level of play is increased whenever you get four frogs safely across the freeway and into their boxes. Each level gets more difficult.

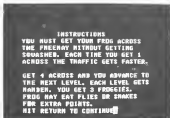
Scoring is based upon the number of HOPS that are taken, flies and snakes that are eaten, and the number of frogs that make it across. Each level completed gives you an additional bonus.

This game is well done and contains a mixture of HI RES graphics for the playing field, machine language routines for the play, and BASIC for instructions and scoring. The game comes with instructions in the program. It is NOT TIMED, but requires you to act and respond quickly in order to avoid the traffic. You are allowed three squashed frogs before the game ends and scoring is displayed.

The following contains important elements of the game FROGGY ON THE FREEWAY.

1. Predominant language--Machine language with some BASIC instructions.
2. Color Variation--Moderate.
3. Sound effects or music--Sufficient for the game.
4. Type of control--Keyboard for instructions--Joystick for the game.
5. Screen variation--Higher level of play increases movement on the same screen layout.

6. Predominant mode of resolution--High resolution.
7. Instruction clarity--Written instructions OK plus instructions and scoring values within the program.
8. Game variation or random surprises--Speed variation with level of play.



Shown above are some of the instructions that are included within the program. Further instructions appear upon depression of the RETURN key.



The MAIN SCREEN consists of the FREEWAY with its HIGH RES collection of moderately moving CARS, FLIES, TRUCKS, and SNAKES. You can eat the flies to increase your score, and munch on a snake or two. Stay clear of the vehicles or else be SQUASHED. Hop across the freeway and into any of the boxes shown at the top of the screen. Another frog will then appear at the bottom of the screen READY TO HOP!

PRODUCT REVIEW

COPY WRITER

Here's a WORD PROCESSING PROGRAM developed for the IM-1 through the combined efforts of JIM GLATFELTER & C.B. JONES.

Documentation for this program is very good. The written instructions that come with it clearly explain each aspect of the program.

At first glance, I thought that this program was going to be slightly function laden like so many of the WORD PROCESSING PROGRAMS for OTHER systems appear to be. After spending a few minutes skimming over the instructions, I quickly discovered that I was wrong!

The 20 items on the MENU are alphabetically related to their entry such as, T for TYPE, V for VIEW, P for PRINT, etc., and it appears that alot of effort has gone into this program to keep it simple.

Each entry is assigned to a LINE #. Typing begins on LINE 1 and advances one line each time the RETURN key is depressed. You can type up to 120 lines of 80 characters per line, and the text can be saved to tape or disc for future printing or editing.

The only problem that I encountered was with the tactile key response of the keyboard while typing. The keyboard is structured by the program to REPEAT if a key is held down for a given length of time. I had to get used to the timing in order to avoid a double entry of the same character. If the key wasn't held long enough to register on the screen, it would occasionally miss a character. The outcome of course, would depend upon the individual user's typing skills and habits. What may seem a little awkward for one, may be perfectly acceptable to another. After a few minutes of getting used to the keyboard action, the problem was no longer evident.

With all points considered, this program is ERROR FREE, SMOOTH SAILING, and provides a good method of generating professional looking LETTERS and TEXT. It also makes storing and retrieving data a BREEZE! MULTIPLE COPIES can also be made by entering the number of copies desired.



The following are some important elements of the program COPY WRITER.

1. Predominant Language--BASIC with MACHINE LANGUAGE ROUTINES.
2. Type of control--KEYBOARD.
3. Instruction Clarity--Excellent documentation covering all aspects of the program.
4. Ease of Operation--Simple to use.
5. Application--Form letters, personal letters, saving of text in pages by line number, Library, General storage.
6. Printer Control--Allows printer commands to be embedded in the text so that the program can adequately control MOST printers. Uses both ESCAPE and CONTROL keys.
7. Packaging--Neatly and professionally labeled. Comes complete with instructions.



8. This program will provide over 100 EXTRA lines when loaded into 24K expanded systems.

SOAPBOX

The SOAPBOX is intended for YOUR STATEMENTS which may or may not be related to the IM-1, AFF ELECTRONICS, or the NEWSLETTER. The following articles which express the VIEWS of those whose names appear within, may not necessarily be the same views shared by the IM-1 in A MILLION CLUB or GEO*GRAPHIX LIMITED. POLICY STATEMENTS regarding the operating procedures of the club may appear periodically in this section.

JOHN PFAFF

"Without a company (APF) to stand behind us. WHERE DO WE GO TO FROM HERE?

I've considered getting rid of the IM-1 and go out and buy a computer that does a whole lot more. I was thinking about a T.I., but when I heard that they may be getting out of the computer line, I held off. Now I hear that they DID get out of it! I wonder how many more companies are in trouble. The more I hear about other companies getting out, the more I tend to value my IM-1 a little more.

We've got to INCREASE our resources in order to STAY AFLOAT! We need more hardware, software, modifications, services and information for our computers. The only place to get these things are from other owners who would give some of their time to help us all out.

In time I think that we will all become more knowledgeable of the IN-1 and will be able to relate this KNOW-HOW to other computers that we may be involved with in the future. Maybe we are in a better position than what we might think! By having to FEED FOR OURSELVES, we may gain MORE KNOWLEDGE than if we had everything done for us by a supporting company."

WILL JAMES

"I'd really like to see more detailed information in the newsletter covering ENVIRONMENTAL CONTROLS. I'd like to see some ideas and articles about WHO is doing WHAT in this area with the IM-1 computer. I'd also like to know if anyone is using their IM-1 for weather monitoring, or have developed any kind of interface to take inputs from VANES, TEMP PROBES, WIND VELOCITY AND DIRECTION DEVICES, or any other WEATHER EQUIPMENT".

[illegible]

Q & A

Here's a good question submitted by VINCE JOHNSON.

QUESTION

"It is often desirable to display a column table of numbers (The first 100 prime numbers, for example). On the IM-1 the comma is used for columnar spacing. However, the 9th and any multiple of 9 items will appear ALONE on a line by itself which results in a RAGGED APPEARANCE in a lengthy table. Apparently a pointer (or counter) is working in ECM to accommodate 5 items on 2 lines, but not reset until a 9th item is displayed."

TRY THE FOLLOWING PROGRAM:

```
LOCAL117046:POKE40960,2:POKE40961,0:Z=0
20FORI=1TO60
40PRINTI:NEXT
110INPUTA
```

"As you can see, you get a RAGGED TABLE. Insert the following step:

```
50Z=Z+1:IFZ=9THENPRINTI:Z=0:NEXT
```

Now the table is REGULAR, but is there a BETTER WAY?"

ANSWER

It appears that the columnar spacing function is MAXED OUT within your loop and react upon the next command being PRINTI. A temporary solution without using an additional variable would be:

```
LOCAL117046:POKE40960,2:POKE40961,0
20I=1:FORI=1TO60:PRINTI,1+1,1+2,1+3:I=I+1:
NEXT
```

This would be a way of doing it in BASIC. Does anyone know how to force this PRINT function BACK to it's original state with a simple POKE statement to an address that controls this function?

ulator A with the hex number '55', it would look like this in memory:

MEM LOC	MEM CONTENTS (HEX)
0100	86 LDA Immediate OP 55 DATA
86 in hex is the LDA Immediate OP code. 55 in hex is the data. The result after execution of the above is that the HEX number has been loaded into accumulator A. (Hex number being 55).	
DIRECT--In this mode of addressing, the ADDRESS is found in the next memory location following the OP code. This enables direct addressing of the first 256 bytes of memory (0000 to 00ff in hex). As an example, to load accumulator A with the DATA contents of memory location 67 (in hex), consecutive memory locations would look like this:	
MEM LOC	MEM CONTENTS (HEX)
0100	96(LDA A direct OP
0101	67(Address of memory containing the data)
96 (in hex) is the LDA A direct OP code. 67 (in hex) is the address where the data is to be fetched from. So, whatever is in memory location 0067 would be loaded into accumulator A.	

The following was submitted over the phone by a member in New Jersey. Sorry, but I didn't get your name but THANKS FOR THE QUESTION!

QUESTION

Can the BROTHER ELECTRONIC TYPEWRITER be interfaced to the IM-1?

ANSWER

We are contacting all of the LARGER manufacturers of electronic typewriters such as ADLER, SMITH CORONA, HERMES, BROTHER, and others, and requesting complete information on their required control codes in order that we can answer YOUR question correctly. There are variations in most printers, and we will try to find out what type of variations exist in the typewriters.

As soon as the information arrives, we'll begin an entire article on this subject so that you will be fully informed on each one.

THANKS TO ALL WHO HELPED THIS SECTION OUT THIS MONTH!

DAVE BARR questions some HL instructions.

QUESTION

"When studying the use of addressing modes in Machine Language, the 2 modes that are somewhat confusing and seem to be redundant are the IMMEDIATE and DIRECT modes. I don't understand the difference."

ANSWER

It appears that you may be overlooking some important INDIVIDUAL aspects of these modes.

IMMEDIATE--The OPERAND is found in the next one or two memory locations following the OP code. For example, to "Load accum-

Artshop

TYPEWRITER ART

If you've ever been to the MALL during 'COMPUTER DAYS', you may have seen some form of TYPEWRITER ART displayed amidst the endless displays of computerware.

A lot of people pride themselves on displaying their SNOOPYS, CALENDERS, YULE TIDE SCENES, and other typewritten pictures. Typewriter art has been around for a long time, and certain publications date back to the early thirties!

The following short program will take the drudgery out of counting spaces, line after line, in order to produce masterful artwork. It contains a hardcopy selection for those of you with printers, or allows you to display your artwork on the screen.

For screen displays, the picture must not exceed the parameters of the screen, or the picture will not make any sense when displayed. An 88 character or above printer is required to produce hard copy.

You may store your pictures for future display or editing. For those of you without printers, the pictures may be saved to tape for whenever you may obtain a printer. If you type this program into 16K, you can change the AS dimensions to larger amounts to accommodate larger entries.

CLOAD the program initially. When re-loading your picture from tape type ICLOAD with a RETURN, then RUN. This will keep your picture intact for display or editing.

The adjacent page contains entries that will make up a picture. These are fairly LARGE, so a printer is required to display them properly. Each NUMBERED SET consists of the amount of spaces, and the number of particular characters that should be entered.

EXAMPLE: 1 46SP 7X
 | |
 | 7 PERCENT SIGNS
 46 SPACES
 LINE

Follow the instructions in the program to enter the line number and SETS. When more than 1 SET appears on the same line, merely continue to enter the remaining SETS on that line, then start a new line. IF YOU WOULD LIKE TO SHARE YOUR ART WITH OTHER MEMBERS...PLEASE SEND IT IN!

```
5 DIM A$(40:88)
10 DIM MALL$(1:89)
15 INPUT "ENTER TOTAL LINES USED":T
20 DIM A$(1:T):GOTO 135
25 CALL 17044
30 PRINT "ENTER THE LINE NUMBER THEN"
35 PRINT "TYPE IN THE AMOUNT OF SPACES"
40 PRINT "FOR THE SET FOLLOWED BY A"
45 PRINT "RETURN-THEN TYPE THE CHARACTER"
50 PRINT "FOR THE SET-THEN RETURN KEY."
55 PRINT "ENTER 99 FOR SPECIAL MENU."
60 PRINT "FOR A NEW LINE NUMBER-PRESS"
65 PRINT "RETURN UNTIL 'ENTER LINE'"
70 PRINT "NUMBER" APPEARS."
75 MUSIC "1/1":PRINT #0
80 INPUT "ENTER LINE NUMBER":L
85 IF L=99 GOTO 135
90 IF L=0 THEN P=0:GOTO 75
95 MUSIC "45"
100 INPUT "ENTER AMOUNT":X
105 INPUT "ENTER CHARACTER":A$(L:0)
110 IF X=0 THEN P=X:GOTO 75
115 IF X=99 GOTO 135
120 FOR Z=1 TO X:A$(L:P)=A$(L:0):P=P+1:NEXT
125 PRINT A$(L:0)"LINE "L:IF L>T THEN T=L
130 GOTO 95
135 CALL 17044
140 PRINT "ENTER 1 TO PRINT EVERYTHING"
145 PRINT "ENTER 2 TO SAVE TO TAPE"
150 PRINT "ENTER 3 TO BEGIN AND 4 TO EDIT"
155 INPUT D
160 IF D=1 INPUT "ENTER 1 AGAIN FOR HARD COPY":H
165 IF H=1 THEN PRINT =1
170 IF D=3 GOTO 25
175 IF D=4 INPUT "WHICH LINE DO YOU WANT DELETED?":0
180 IF D=4 PRINT "LINE "0" IS DELETED"
185 IF D=4 THEN A$(0:0)=NULL$(1:0):GOTO 75
190 IF D=1 THEN D=0
195 IF D=1 FOR Z=0 TO T:PRINT A$(Z:0):NEXT
200 IF D=1 GOTO 75
205 IF D=0 GOTO 135
210 IF D=2 CALL 17044
215 IF D=2 POKE 48960:23:POKE 48961:0
220 IF D=2 PRINT "TYPE ART":INPUT "PICTURE":Z
225 PRINT "TYPE GOES AFTER 99 APPEARS"
230 PRINT "IF YOU DON'T TYPE ICLOAD AND"
235 PRINT "RUN WHEN YOU LOADED THE PROGRAM"
240 PRINT "YOU'LL HAVE TO CLOAD AGAIN"
245 PRINT "TOTAL LINES USED ARE "T
250 SAVE
```


LINE	SET	SET	SET	SET	SET	SET
1	8sp9%					
2	8sp9%					
3	10sp5%	19sp21%				
4	10sp5%	19sp21%				
5	10sp5%	19sp17%				
6	10sp3%	19sp6%	7sp4%			
7	6sp34%	7sp4%	9sp28%			
8	2sp18%	7sp4%	7sp30%			
9	2sp18%	7sp4%	6sp31%			
10	2sp49%	6sp31%				
11	4sp47%	6sp31%				
12	4sp47%	6sp31%				
13	3sp3%	8sp11%	5sp11%	1sp9%	6sp31%	
14	2sp19%	1sp9%	6sp31%			
15	1sp40%	1sp46%				
16	4%9sp	9%7sp	9%18sp	5%2sp	5%4sp	5%2sp 3%
17	17sp5%	11sp5%	21sp3%	4sp3%	6sp3%	4sp3%
18	88/ (Strike diagonal sign 80 times)					

THE LANGUAGE BARRIER

PEEK, POKE, AND PRINT

The PEEK command allows you to LOOK at any ADDRESS that may or may not contain DATA. In BASIC, the address that you want to peek at is written by the programmer as a DECIMAL NUMBER. When the PEEK statement is generated, the address is converted into a HEXIDECIMAL number and the processor takes a look at the contents of that address.

The statement that sometimes goes along with a PEEK statement is a PRINT statement. This will allow you to actually see what the contents of the address are. To have the results printed onto the screen, you would combine the PRINT statement along with the PEEK statement as follows: PRINTPEEK(Your decimal address).

The POKE command allows you to place a numeric value into an address of your choice. This value can be any value from 0 to 255 and can be used for variety of applications. The POKE command contains the address first, a comma, then the decimal number that you want placed at the address. An example of a POKE statement is: POKE 100,5. This would cause address 100 to contain the decimal contents of 5.

Now let's try combining the PEEK, POKE, AND PRINT statements to form a short program.

```
5PRINTPEEK(100)
10PRINT"THE VALUE OF ADDRESS 100 IS ";PEEK(100)
15INPUT"ENTER THE NUMBER TO POKE",X
20POKE100,X
25GOTO10
```

To initially PEEK at our address.
To combine a PRINT statement with PEEK.
ENTER any number 0 to 255.
Put that number at address 100.
Return to see if the POKE made it.

These important statements are shown here in a simple program. POKE and PEEK statements are very popular in lengthy and complicated programs of all kinds. For those of you just getting started with BASIC, these statements should provide you with some interesting uses as you progress.

THE ARCADE

This section, written by ERIC HECKETT and edited for the newsletter is intended to introduce you to the fascinating world of HIGH RESOLUTION, MACHINE LANGUAGE GAME PROGRAMMING. The purpose is give you adequate instruction in order that you can LEARN as you PROGRESS. The methods here have been selected by the programmer, and may differ from other methods. We hope that you will find this category easy to understand, interesting, and FUN!..editor

WELCOME to the first ARCADE column. In this series I will attempt to teach you HOW to write a machine language (ML) program or routine. ML is a very fast language which must be used to move alot of things at the same time quickly on the screen. You'll then learn how to use these routines in a BASIC program. Each month will bring you closer to the finished product, so practice what you have learned in the interim.

It would be ideal if we could write an ARCADE type game using BASIC LANGUAGE ONLY. However, most BASIC routines are just too slow. In order to gain SPEED, where SPEED is required, we must resort to ML routines. Everything else can be done with BASIC because it's easier, and SPEED is not a factor. As an example of the BASIC that will be included, we can have OPENING ROUTINES, INSTRUCTIONS, GAME SOUNDS, etc... We jump to these routines from ML periodically for scoring, and instructions, then re-enter the game again by using a CALL statement in BASIC. This will put us back and running in our machine language once again. I'll discuss more on the CALL statement later on in the instruction. For more information on this, refer to the BASIC TUTOR or the APF TECHNICAL REFERENCE MANUAL.

When you use ML, you are directly commanding the MC6800 microprocessor instead of going through the BASIC cartridge. These commands are just numbers or codes that are referred to as OPERATION CODES, or OP CODES for short. The MC6800 has many different OP codes or instructions, and each one causes the microprocessor to perform a different function. These instructions, when placed one after another form a LINE UP OF EVENTS, in a similar manner to which BASIC programs are done, line by line. The major difference is that when in ML, there are no LINES to interpret from BASIC statements. This causes the entire program, or ML routines to operate very quickly.

When using a CALL statement and going to the machine language routine, your program will run through the routine very quickly thus providing the SPEED that is desired.

There are a few different ways that we can write our ML program. One way is to enter our OP codes in, one at a time, using APF's built in ML monitor (CALL28672) or, you can buy an ML ASSEMBLER program which would require you to learn ASSEMBLY LANGUAGE as well. I'll show you the first way since everyone already has the built in capability of entering the MONITOR MODE.

The 6800 microprocessor has 8 DATA LINES. One of these lines carries 1 BIT of data. All 8 bits make up a word of information called a BYTE. The OP codes can be 1,2, or 3 BYTES long. The OP codes are in a numbering system called HEXIDECIMAL. This numbering system counts normally 0 to 9, but after 9 comes A,B,C,D,E,F, then goes to 10. If you had a number that was in HEXIDECIMAL that equaled 10, the number would be 16 in DECIMAL. The maximum amount that you can have in each placement in a HEXIDECIMAL number is F or 15. When 16 is reached, the placement to the right returns to 0, and the next placement to the left becomes a 1. Counting then resumes in the RIGHT column until F is reached again. Then the LEFT column is incremented again by 1, which would make it 20. This HEXIDECIMAL number would represent the DECIMAL number of 32. It is very important that you remember: You must use DECIMAL numbers when you are in BASIC, and HEXIDECIMAL numbers when you are in MACHINE LANGUAGE. Hexidecimal numbers are used to represent very LARGE decimal numbers.

This has been a brief review of HEXIDECIMAL numbers. More information on these and other numbering systems can be found in many publications available at your bookstore. USING THE 6800 MICROPROCESSOR is a good source along with HOW TO PROGRAM AND INTERFACE THE 6800. to be continued..

SHORT PROGRAMS

DRIVERS.....START YOUR ENGINES!

Now for a QUICK TRIP around a LO RES TRACK we invite you to TAKE YOUR PLACE in the DRIVERS SEAT in this nice running GRAPHIC SPEEDWAY THRILLER...RACE CAR...by G.R. JONES!

THANKS GLENN!

```
1 POKE 26112:POKE 24379:30: CALL 17046
2 PRINT SPC (12):"RACE CAR": PRINT : PRINT SPC (10):"BY G.R. JONES": PRINT : GOTO 21
10 POKE 40961:210: IF S=0 THEN S=0*H-N*1
20 PRINT N:":30: RETURN
21 PRINT "USE THE RIGHT JOYSTICK TO DRIVE AROUND THE TRACK. YOU MUST GO 'UP' FIRST, THEN FOLLOW THE TRACK."
22 PRINT "IF YOU CRASH, YOU MUST START AGAIN, EVEN THOUGH THE TIMER CONTINUES TO TICK AWAY!"
23 PRINT "YOU MAY PRESS 'FIRE' OR 'EM' FOR A NEW GAME. GENTLEMAN AND LADIES: START YOUR ENGINES...."
24 FOR T=1 TO 2500: NEXT
30 S=0:G=1:T=0
40 CALL 17046
50 COLOR =4: SHAPE =3
60 POKE 40960:3: POKE 40961:105
70 PRINT "WIN SEC"
80 HLN 0:31:0
90 HLN 0:20:15
100 HLN 4:5:25
105 HLN 12:15:24
110 HLN 20:25:9
115 PLOT 20:0
120 HLN 24:21:12
130 HLN 1:34:0: VLN 1:11:31
135 HLN 7:0:16
140 HLN 3:11:4: VLN 1:0:0
145 PLOT 4:12: PLOT 10:12: PLOT 10:12: PLOT 14:14
146 PLOT 14:13
147 PLOT 10:13: PLOT 10:13
150 HLN 5:20:11: VLN 4:10:12
155 HLN 16:22:6
160 HLN 12:16:3: HLN 24:28:3
165 VLN 1:5:20
170 COLOR =3: SHAPE =15
180 C=2:R=12
190 PLOT C:R
195 IF KEY (1)="M" THEN GOTO 200
197 GOTO 195
200 B0N A0(1): POKE 40960:3
210 A0= KEY (1):L=50:32:R=C
215 S=S+L:2: IF S= INT (S) THEN COS00=0
220 IF A0="M" THEN POKE L:120:R=0: GOTO 260
230 IF A0="S" THEN POKE L:120:R=0: GOTO 260
235 IF A0="P" THEN END
240 IF A0="W" THEN POKE L:120:C=C-2: GOTO 260
245 IF A0="I" THEN GOTO 1
250 IF A0="E" THEN POKE L:120:C=C+2: GOTO 260
255 GOTO 210
260 IF P00H (512:32:0:C):200 THEN MUSIC "J1": CALL 17046:T=T+1: PRINT "YOU CRASHED "TT1" TIMES 1% FOR D=1 TO 200: NEXT : GOTO 40
270 PLOT C:R
280 IF T=10 THEN STOP
290 GOTO 210
300 REM "BY G.R. JONES 4-81"
```

MAILBAG

The MAILBAG is an area for you to let everyone know what's happening in your area with the IM-1. Local user group meetings, training, computer fests are just a few events that we'd like to pass along to others in this category. If we find that there are no HAPPENINGS with the IM-1, this category will be used to provide any information on ANY IM-1 related subject that ANYONE would like to submit. Types of equipment that you are using with your IM-1 would be welcomed here, including any modifications, upgrades, wiring changes. Disc drive problems, or general information about them could appear in this section. You submit it and we'll print it! You may have some SPECIAL ROUTINES that you use to perform a special function. Others may benefit from it if you'll pass it along! Lastly, this category will welcome information that has not been available in the past, and would be difficult for most members to get such as, FREE DIAL UP BULLETIN BOARD SERVICES/NETS and PHONE NUMBERS of these services. We will provide these numbers periodically and will check to insure that they are STILL VALID before we print them.

The following information was submitted by DAVID DONNELLY and consists of many of the IM-1 Machine CALLS (DECIMAL & HEX), and their results. This information was gathered from the many pages of the PROGRAMMING AND TECHNICAL ASSISTANCE MANUAL, and reference is made to it's chapter and page. This is a partial listing of the data submitted by Mr. Donnelly. More of the list will be printed each month.

DECIMAL	HEX	CONDITION	REMARKS
17006	426E	PROC	BEEP
17026	4282	PROC	WHISTLE/BEEP
17033	428B	PROC	CLICK
17046	4296	PROC	CLEAR SCREEN TO BLACK. REF 6-8
17048	4298	PROC	SET SCREEN WITH ONE CODE. REF 6-8
18300	477C	PROC	SET CONSECUTIVE BYTES WITH 1 CODE. REF 8-8
24578	6002	FLAG	DATA REC-B NPAIO PIA. TAPE CTRL SEC. REF 2
25600	6400	FLAG	RS-232 DATA/CNTRL REGISTERS. REF SS-232 3-9
26112	6800	FLAG	TURN OFF DISC MOTOR
26681	6839	PROC	BASIC COMMAND 'INIT'
26727	6867	PROC	BASIC COMMAND 'DIR'
28672	7000	PROC	ENTER MACHINE LANG. MON. REF 4-1
30464	7700	PROC	MOVE MEMORY BLOCK. REF 6-7
30491	771B	PROC	ADD TO INDEX REGISTER. REF 6-9

to be continued next month

Here's a list of DIAL UP BULLETIN BOARDS throughout the country. Some may require LOGIN procedures, others may not permit access for one reason or another, but most of them allow you to use them for various lengths of time. There's ALOT of useful information to be obtained from these systems, so FIRE UP THAT MODEM and HAVE AT IT!

GAMEMASTER, CHICAGO, IL.....	(312)475 4884	24hour
ABBS HAYWARD, CA.....	(415)881 5662	
ABBS MESSY FLYNN'S BBS, CRYSTAL LAKE, IL....	(815)455 2406	
ABBS PACIFIC PALISADES, LOS ANGELES, CA.....	(213)459 6400	
ABBS ROGERS PARK, CHICAGO, IL.....	(312)973 2227	Some of these boards are
ABBS SOFTWARE SORcery, HENKSON, VA.....	(703)471 0610	very busy, so be patient.
ABBS TURNERSVILLE, NJ.....	(609)228 1149	Early morning hours are
ABBS VANCOUVER, B.C.....	(604)437 7001	the best times for most
ABBS WEST PALM BEACH, FL.....	(305)848 3802	

to be continued..space permitting!

ORCHESTRA PIT

HERE'S A CHALLENGE FOR ALL MUSIC LOVERS!

The following short program will generate music in ONE OCTAVE ONLY--D0E TO D0E--with NO SHARPS OR FLATS, but will display each key depression in REAL TIME! The IN-1 provides the timing, and after the screen is full of notes, will play the tune back for you in approximately the same time in which it was entered! Isn't that AMAZING!

We'd like to see YOUR VERSIONS of this program. Also can be added, removed, or the whole thing could be thrown out and RE-DONE! Please leave LINE 1 though...I'm partial to that one! You may want to elaborate upon the display, add a graphic musical scale to show each note placement, add sharps or flats, or store the screen contents after playing. Send us your ideas and we'll print them in upcoming issues of the newsletter. For those of you who may have machine language routines to enter, be sure to send along the codes and addresses to enter. LET US HEAR FROM YOU!

```

CALL TPA00A
L# 00H #6121
L1 01H #00L#6123
L5 FOR Z=512 TO 1024
Z# A#+ 1024 Q#
Z1 IF A#="" THEN A#="*"
Z2 IF A#="8" THEN A#="*1"
Z# MUSIC A#
Z# = ASC (A#): POKE Z:# IF PEEK (Z)=Z THEN Z+1: POKE Z:A#
Z# A#NULL#
Z# NEXT : GOTO TPA00
1000 FOR Z=512 TO 1024
1001 M=POKE (Z)
1002 POKE Z,159: POKE Z,129: POKE Z,M
1003 IF PEEK (Z)=Z THEN Z+1: POKE Z:A# MUSIC "*"
1004 A#=CHR# (M)
1005 MUSIC A#
1006 NEXT

```



Here's a nice little tune that shouldn't take too long to enter.

```

9050 MUSIC "51 2 3 1 2 300000/5/7 1 2 /7 1-112 3000/51 2 3 1 2 "
9060 MUSIC "300000/52 3 5 4 3 2 10 "
9070 MUSIC "10000/4000/5000/+4000000000"

```

It's a little late for this one, but perhaps you can put it to good use around DECEMBER!

[illegible]

This one could be added to a GLOCK program and be made to WAKE YOU with DIGNITY each and every morning!

```
900MUSC*50000 50 50+300+700*  
901MUSC*5000 +300 +2 +16000 5040050 +207000 +200+1000*  
981ST+T+IFT+25TOP  
902OCOT00000
```

EXTRA

Here are a few more items that we thought should be mentioned before ending this issue.

MAINTENANCE

If you should require maintenance on your machine and would rather not do it yourself, you can contact the past operators of the IM-1 IN A MILLION CLUB for their current rates and services. Mail inquiries to: M B ENTERPRISES INC.

P.O. BOX 1411
SPRINGDALE, AR 72764

QUICK REPLYs

We will respond promptly to your letters if they include a self addressed STAMPED envelope. We will do everything possible to get your questions answered immediately, so help us to do this by remembering the S.A.S.E.

—THE NATIONAL MAILBOX

Appearing below are names and addresses of APF computer owners who would like correspondence from other owners/members. If you would like to place information about yourself in this section, please send us the information. Your signed permission is also required.

Greg M. Ching
121 Embrace St.
Palo Alto, CA 94301

A senior, double majoring in Electrical Engineering (Computers), and Philosophy (Formal Systems) at Stanford University.
"I am very interested in working to extend the capabilities of my IM-1, especially in the area of MAIN FRAME communications."

Michael Russell
Box 2084 CS
Pullman, WA 99163

"Have massive software for the APF. Have expanded the machine to control any outside electrical device. Will help or trade with interested APF owners."

Steven G. Liberatore
7 Richard Circle
Maburn, MA 01801

"I own an IM-1 with dual disk drive, RS232 interface, printer, and a modem. I am an Electrical Engineer at U-MASS and hope to use my machine for more uses other than playing end programming games."

Dwight E. Morris
2324 Miami Dr.
W. Palm Beach, FL 33406

"APF computer, RS232, RS-E, Epson Printer, Modem. Interested in flying, ham radio, machine programming, real estate, gardening, beer!"

CLASSIFIED ADS

Please send for our ADVERTISERS RATE SHEET. This includes information about the various requirements for advertising in the newsletter. CLASSIFIED and COMMERCIAL ADS are covered in the RATE SHEET.

SPECIAL THANKS

Our sincere appreciation goes to all of the members whose names appear below, who submitted information for THIS ISSUE, and alot of information for FUTURE ISSUES. MANY MANY THANKS TO YOU ALL! CHUCK CLANCY DAVE BLAND-DWIGHT MORRIS-MICHAEL RUSSELL KLAUS AND RUTH WENTZ-VINCE JOHNSON-GARY REINHOLD DAVE GALLUP-JIM CLATFELTER-ART SEBELIUS G.R. JONES-DAVE DOMMELY-ERIC BECKETT-GREG CHING RICHARD HARMS-JOHN PFAFF-BILL JAMES-DAVE BARR STEVEN G. LIBERATORE-SOMEONE IN NEW JERSEY!

Get ANY brand new APP PROGRAMS of your choice FREE!!! (while they last)

Buy anyone of my games and you get a new APP program of your choice; still in the wrappers and guaranteed new; FREE!!!!!! I have all games on the list below but please list 1 alternate game in case your first choice is sold out fast. To get your free program just order any one of my games; PAK-MAN, FROGGY ON THE FREEMAN, ESCAPE, MS. PAK-MAN and Foosball!!! and SUPER FROGGY!!!. These are excellent quality hi-rus arcade games loved by hundreds of APP owners.

Foosball!!!

NEW

A very fast 2 player arcade type game. Each player enters their name and uses one of the joysticks. Each players joystick moves his 9 men all at the same time. These men or paddles are set up like a foosball table! You must try to advance the ball towards your opponents goal then bounce it in and score! Uses color graphics, has three skill levels, displays winners name and score and the all time high scorers name and score! Now you don't have to sit around and wait while someone else is playing a game, you both can play! only \$7.50 shipped free!

Brand new APP 8K expansion cartridges with all literature only \$12.00

Also Brand new SI-232 serial interface adapter with all literature only \$12.00

Working IM-1 computers (only 2 left!) without BASIC cartridge \$95.00

Any 10 APP programs from list below only \$12.50 shipped free!
Any 5 for only \$7.50 shipped free!

Original APP diagnostic test program. Tests every function of your APP.
New test, ram test, keyboard test, sound chip test, tape test, and more!
only \$6.50

APP Programs Available: *(PLEASE! LIST ALTERNATES)*

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Jumbled up Things

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Send
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E. BECKETT
8836 WEST
WATERFORD SQ. So.
GREENFIELD, WI
53228

GENERAL DESCRIPTION

Type-N-Talk™ is a completely self-contained text-to-speech synthesizer.

The unit is as easy to program as typing data or programs into a computer. Type-N-Talk™ may be easily interfaced to a computer, modem or any RS-232C compatible serial device.

It contains a low data rate Voltrax® SC-01 Phoneme-based speech synthesizer CMOS chip with unlimited vocabulary and a microprocessor based text-to-speech algorithm.

The Type-N-Talk™ text-to-speech translations are performed completely independent of the host computer. So the user's computer is free to perform other tasks while speech is in process—with no effect on the throughput of the user's computer.

- 750 character buffer
- Data switching capability
- Selectable data modes for versatile interfacing
- Baud (75-9600)
- Data echo of ASCII characters
- Phoneme access modes
- RS-232C interface



To order, and for further information, contact:

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P.O. Box 54 • Arrowsmith, Illinois 61722



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TITLE _____

COMPANY _____

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General Description

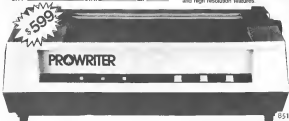
C. Ich's PROWRITER is a revolutionary advancement in printer development. PROWRITER offers professional not hobbyist quality, productivity through a combination of high-speed matrix printing, logic seeking unit and bidirectional printing, and quick return head motion; proportional spacing combined with correspondence quality printing. Graphics capability is built-in and includes shape (character generated) and high resolution features.

A short summary of features, all standard with PROWRITER, make PROWRITER the logical and only choice for those applications and installations where quality and cost of ownership are considered. A printing speed of 120 CPS (based on a 10 pitch font) is combined with 15 unique character sets, 8 character sets including 2 that are proportionally spaced, bi-directional paper feeding and high resolution dot positioning—144 by 160 positions in a 1 inch square. Cartridge ribbon with friction and built-in bidirectional tractor feed combined with paper cut-off of less than 1 inch from the print line, provide previously unavailable options to those who integrate PROWRITER into their systems. Vertical and horizontal tabbing is automatic with PROWRITER and since stepper motors are utilized for motion in both axes, PROWRITER is quiet. Of course manual functions including Select, Line Feed, Top of Form and Power-On, combined with Paper Empty and Cover Open switches are included.

Microcomputer technology is used throughout for total reliability. All switches necessary for setup selection are easily accessible. Head to paper distance is readily adjustable for a variety of form thicknesses and speaking of the head, it is designed for a long, useful life. Its depth and mass assure sufficient impact along with high precision and trouble-free operation.

Using industry standard serial (RS232-C) interface specifications, PROWRITER will easily match your system's requirements.

As with its sibling printers, PROWRITER is backed by Leading Edge's 1-year warranty on parts and labor. PROWRITER is being delivered now, so call today for more information.



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